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United States
Department of
Agriculture

Economic
Research
Service

WS-258

November 1981

Wheat

OUTLOOK & SITUATION

CURRENT RECORDS

Table 1--Wheat: Supply, disappearance, area and prices, marketing years 1978-81*

Item	1978/79	1979/80	1980/81 (prel.)	1981/82 (Proj.)
		Million bushels		
Supply				
Beginning stocks, June 1	1,178	924	902	988
Production	1,776	2,134	2,370	2,750
Imports 1/	2	2	2	2
Total	2,955	3,060	3,274	3,740
Domestic disappearance				
Food	592	596	614	625 ± 5
Seed	87	101	114	107 ± 5
Feed 2/	158	86	48	200 ± 50
Total	837	783	776	932 ± 55
Exports 1/	1,194	1,375	1,510	1,900 ± 150
Total disappearance	2,031	2,158	2,286	2,832 ± 175
Ending stocks, May 31	924	902	988	908 ± 180
		Million acres		
Area				
Planted	66.0	71.4	80.4	88.8
Harvested	56.5	62.5	70.9	80.7
Set-aside and diverted	9.6	8.2	--	--
Allotment/Nat'l program	58.8	70.1	75.0	81.1
		Bushels per acre		
Yield per harvested acre	31.4	34.2	33.4	34.1
		Dollars per bushel		
Prices				
Received by farmers	2.97	3.78	3.96	3.80-3.95
Loan rate	2.35	2.50	3.00	3.20
Target rate	3.40	3.40	3.63	3.81

1/ Imports and exports include flour and other products expressed in wheat equivalent.

2/ Residual, approximates feed use and includes negligible quantities used for distilled spirts.

* Totals may not add due to rounding.

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Summary

Tighter Free Supplies of Wheat Improve Price Outlook

An alltime high 80.7 million acres harvested and generally favorable weather and soil moisture, which boosted the average yield to a near-record 34.1 bushels per acre brought about this year's record wheat crop. The October 1 production estimate of 2.75 billion bushels exceeds the 1980 record by 380 million. On the strength of this crop, the total supply for the marketing year rose 14 percent to 3.74 billion bushels, also the largest ever. However, given expectations for-record exports and increased wheat feeding, total 1981/82 disappearance will likely exceed production, lowering yearend stocks. Over 70 percent of the carryover may be held in the farmer-owned reserve or by the Commodity Credit Corporation (CCC).

This year's record wheat supply and substantially larger U.S, feed grain and soybean supplies have depressed wheat prices to the lowest early season level in 3 years. Despite exceptional export sales, increased farmer use of the loan and reserve programs, and prospects for reduced carryover, farm prices are still below a year ago. Nevertheless, they have advanced slowly. Further price strength is expected, as free supplies of wheat continue to tighten. The timing and quantity of foreign purchases, crop developments in the Southern Hemisphere, and the outlook for the 1982 winter wheat crop will also influence prices. However, the average farm price is still likely to be below last season's $3.96 a bushel, falling within $3.80 to $3.95. June-October farm prices have been below the target price of $3.81 a bushel, so eligible producers will receive a deficiency payment of around 15 cents a bushel for the 1981 crop. Payments are estimated to total around $400 million.

U.S. exports will likely expand dramatically in 1981/82 because of a significant increase in world import demand. With U.S. supplies more than adequate to meet booming demand, wheat exports are projected at 1.9 billion bushels (51.7 million metric tons). This is a fourth larger than last season's record and means that the United States will account for half of all global wheat trade in 1981/82. World importers will buy nearly 70 percent of the record 1981 U.S. wheat crop.

Dry conditions have tempered the outlook for the Southern Hemisphere's wheat crop, but this season's global output is expected to reach a record 448 million metric tons. The most significant reduction is a projected 8-percent crop shortfall in the Soviet Union—the world's largest wheat producer. The outlook for continued large world wheat use will help to push global trade about a tenth above last year's record.

The 1982 U.S. wheat plantings will probably not repeat last year's alltime high primarily because of an announced 15-percent acreage reduction program. However, current reports indicate vigorous winter wheat planting because of favorable soil moisture and low prices for alternative crops.

THE 1981/82 SITUATION

Another Record Wheat Crop Means All-time High Supply

The 1981 U.S. wheat crop is the largest ever because of the harvest of a record 80.7 million acres and favorable weather and soil moisture conditions, which raised the national average yield to a near-recrod 34.1 bushels per acre. The October 1 production estimate was 2.75 billion bushels, exceeding the 1980 record by 380 million. Chances are 2 out of 3 that this forecast will not differ from final production by more than 35 million bushels.

The planting of the 1981 winter wheat crop in the Plains took place under dry soil conditions, which slowed the plant development needed before winter dormancy. Reseeding was necessary in many areas. However, a relatively mild winter prevented winterkill and widespread spring rains restored soil moisture. Good spring growing conditions continued, except for a mid-May freeze that caused considerable losses in the west central Great Plains. The combining of a record 58.5 million acres more than offset yield decreases and the result was the production of the first 2-billion-bushel winter wheat crop (2.06 billion). Although the freeze prevented a record Hard Red Winter harvest, the expansion of Soft Red Winter acreage, particularly in the Southeast, resulted in a banner outturn. Ideal growing conditions in the Pacific Northwest also produced a record crop (table 2).

Planting of spring wheat got off to an early start, with considerable concern over dry soil conditions in major Durum and other spring wheat growing areas. The rains in late May and early June, which improved spring wheat prospects, were followed by timely summer rains in the Northcentral Plains. The result was a record 1981 Durum and Hard Spring wheat crop. Average yields bounced back nearly 10 bushels for Durum and 6 bushels for other spring wheat after last year's drought. Good harvest weather in the northern Plains also improved quality over the 1980 crop, which suffered extensive sprout damage. Because of the favorable 1981 spring wheat harvest and freeze damage to the Kansas crop, North Dakota is the leading wheat producer for 1981.

Overall, the quality of the 1981 wheat crop is higher than a year ago because of the improvement in Durum and Hard Red Spring. Soft Red wheat quality is somewhat disappointing because of higher protein levels (an undesirable feature in soft wheats) but Soft White has been rated the best in several years.

Feed Use Expands; Food Use Up

The October 1 stocks report confirmed the forecast that short feed grain supplies and large supplies of low-priced wheat would likely mean expanded wheat feeding to livestock and poultry during June-September. Apparent feed disappearance during this period was around 180 million bushels, the largest ever. Feed use-residual for the entire year is estimated at 200 million bushels a four fold increase from a year earlier.

Because of extremely large harvesttime wheat supplies in the Southeast, wheat prices fell below the loan level. Compared with feed grain prices, these wheat prices were attractive to the poultry industry, so wheat was substituted for feed grain. However, this early summer price advantage has now faded in response to the banner 1981 feed grain harvest. Expected strengthening of wheat prices and seasonally low feed grain prices will likely curb wheat feeding for the remainder of the year.

Apparent wheat food use (mill grind) during June-September was up only slightly from the same period a year earlier. The advantage of this year's low stable prices and large supplies has been offset by the high cost of carrying inventory. Millers and bakers have been operating with low inventories during this period of high interest rates. However, mill grind may rebound further if millers and bakers replenish inventories in anticipation of further price rises and a decline in interest rates. Durum grind and use are likely to be up from last year, because the large supply and low prices should prompt pasta manufacturers to include larger portions of Durum in their product formulas.

Two-Billion-Bushel Export Season Within Sight

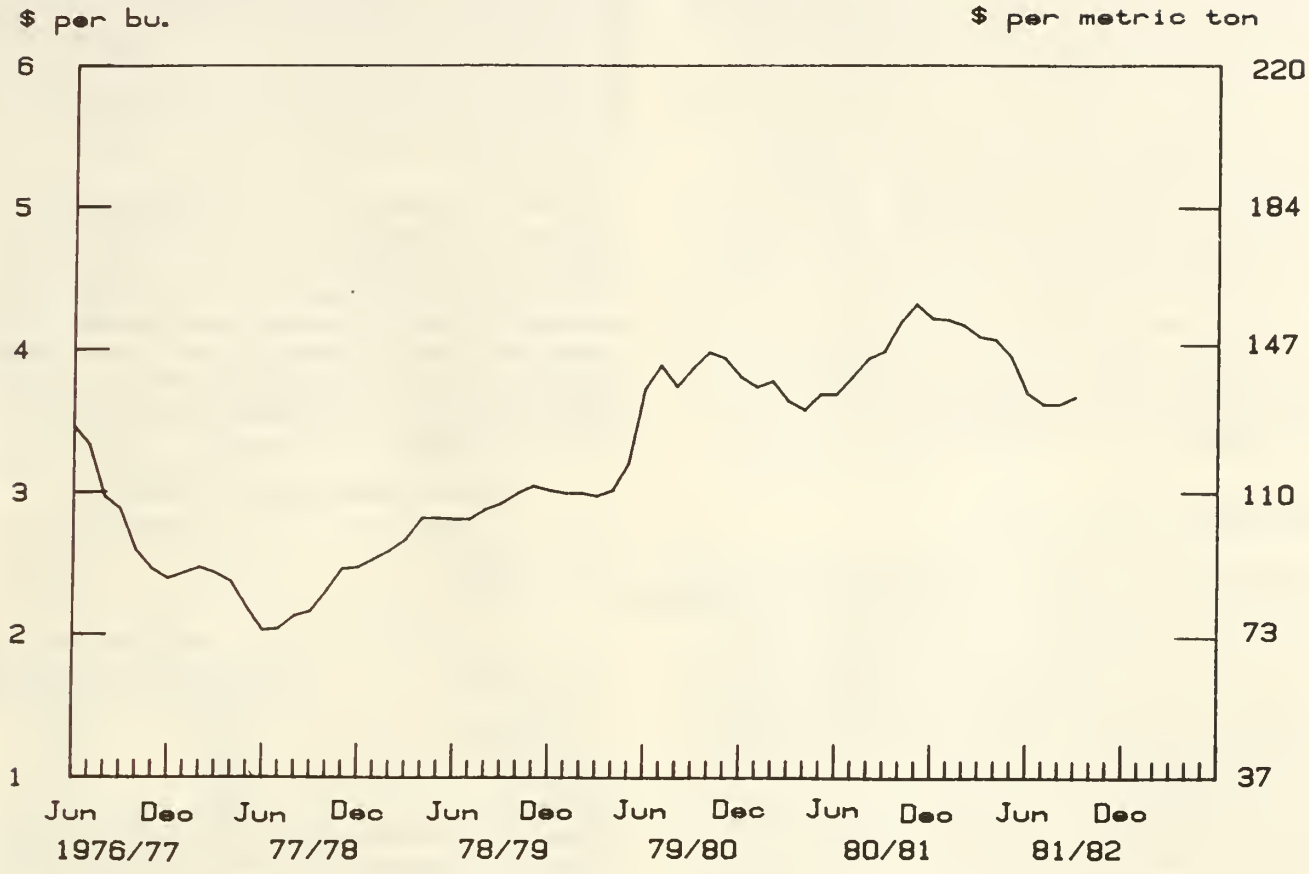
Prospects for increased world wheat trade and for a slight reduction in foreign wheat production, have fostered the forecast for a dramatic 1981/82 expansion in

U.S. average retail prices for cereals and bakery products, 1981

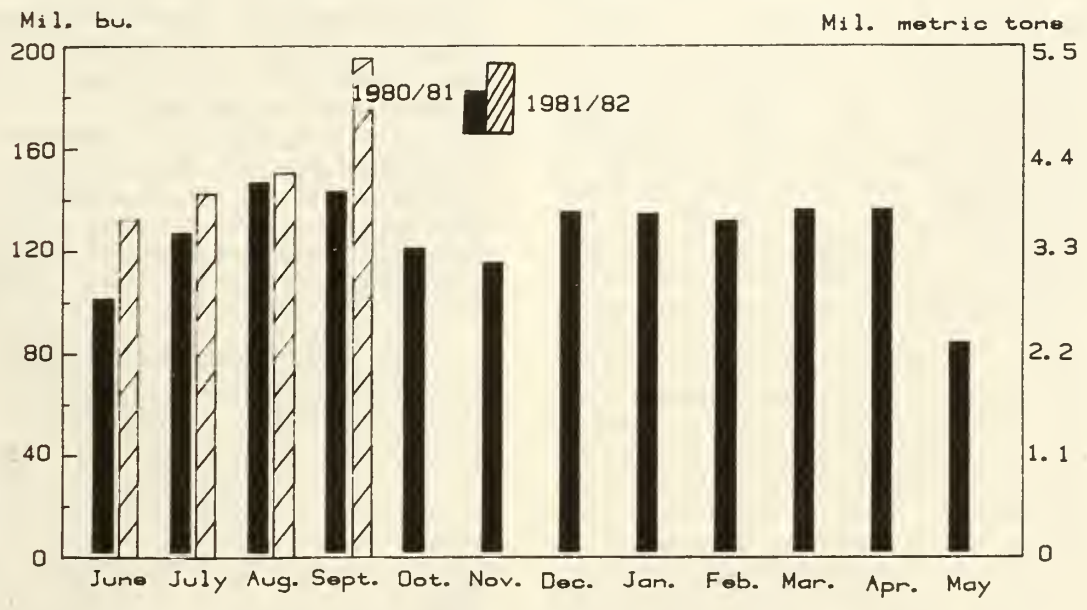
Cereals and bakery products	June	July	August	September
	Dollars per pound			
Flour, white all purpose	0.23	0.23	0.23	0.22
Rice, white, long grain, precooked	1.31	1.32	1.31	1.29
Rice, white, long grain uncooked	.57	.57	.58	.57
Spaghetti	NA	NA	NA	NA
Bread, white pan	.52	.52	.52	.52
Bread, French	.84	.86	.86	.87
Bread, whole wheat, pan	.77	.78	.79	.79
Bread, wheat blend, pan	.67	.66	.68	.68
Rolls, hamburger	.85	.80	.79	.86
Cupcakes, chocolate	1.73	1.73	1.71	1.76
Cookies, chocolate chip	1.71	1.71	1.72	1.73
Crackers, soda, salted	.86	.87	.83	.84

NA = Not Available

Wheat Prices Received by Farmers



U. S. Wheat Exports by Months, Marketing Years 1980/81 and 1981/82



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Includes Flour and Products in Wheat equivalent.

U.S. exports. With supplies more than adequate to meet this booming demand, U.S. wheat exports are projected to be a record 1.9 billion bushels (51.7 million metric tons). This total is one-fourth larger than last season's record loadings and means the United States will supply half of 1981/82 global wheat trade. World importers will buy nearly 70 percent of the record 1981 U.S. crop.

Current export commitments (outstanding grain sales plus shipments) represent nearly 60 percent of the season's total projected volume. Weekly loadings during June-September have been at a record pace. Loadings will have to continue to average around 35 million bushels per week through the season's end to attain the export forecast. China will likely remain the largest single customer, although purchases by the Soviet Union, India, Brazil, and Iran are also expected to be significantly larger than last year.

Wheat Prices Recover Slowly

A large carryover from the 1980 crop and the record 1981 harvest depressed wheat prices to their lowest early season level in 3 years. Farm storage was filled, particularly in the Southeast, and some producers, reluctant to incur off-farm storage costs, sold their crops at below the $3.20 loan price. Once the harvest glut passed, growers' marketing and inventory strategy reflected increased use of the CCC loan and reserve program with placements rising to the highest since 1977/78.

Although both foreign and domestic demand for U.S. wheat has been strong, prices have advanced slowly. This results from other factors influencing market price, such as the high interest rates, the bumper U.S. feed grain and oilseed harvests, and the strength of the U.S. dollar. Further price strength is expected, as free supplies of wheat continue to tighten. The timing and quantity of foreign purchases, crop developments in the Southern Hemisphere, and the outlook for the 1982 U.S. winter wheat crop will also influence prices. The 1981/82 average farm price for wheat is still likely to be below last season's $3.96 per bushel, falling between $3.80 and $3.95.

Deficiency payments for the 1981 wheat crop are certain, based on indications that the average farm price for the first 5 months of the marketing year (June-October) will be below the $3.81 target price. All eligible wheat producers will receive around a 15-cents-per-bushel payment, based on their 1981 wheat acreage planted for harvest multiplied by their established farm program yield. Beginning December 1, an estimated $400 million will be paid to producers.

Wheat: Supply and disappearance

Item	June-September	
	1980	1981
	Million bushels	
June 1 stocks	902	988
Production	2,370	2,750
Total supply[1]	3,272	3,739
Exports	518	622
Food	197	203
Seed	38	35
Feed	47	177
Total disappearance	800	1,037
October 1 stocks	2,472	2,702

[1]Includes imports.

OUTLOOK FOR 1982 PLANTINGS

Set-Aside May Reduce 1982 Acreage

Last year's record plantings (88.8 million acres) are not likely to be repeated for the 1982 crop because of an announced intention to have a 15-percent reduced acreage (set-aside) program. So far, the current outlook indicates vigorous winter wheat planting activity. Many winter wheat areas have good to excellent soil moisture conditions, apparently encouraging producers to sow nearly as much acreage as in 1981. Wet fields and the late soybean harvest may reduce some plantings in major Soft Red wheat double cropping areas, but seeding of wheat in the Southeast could be as large or larger than last season. Favorable soil conditions in the far West may also mean plantings comparable with a year ago. Although spring wheat planting is months off, prospects for weaker 1981/82 price levels and large June 1, 1982 stocks of Hard Red Spring and Durum wheat could mean reduced plantings to meet set-aside requirements, or because of shifting to more profitable crops.

The lack of any strong crop alternative, particularly in the Plains and the Pacific Northwest will tend to maintain acreage in the short run. This is also true in feed grain and oilseed areas where increased supplies and lower prices may not make corn and soybean strong acreage competitors. The success of double-cropping (wheat-soybeans) in 1981 may tend to increase wheat acreage in some areas in 1982.

So, the major incentive to reduce acreage is the voluntary reduced-acreage program. Because of the late announcement of the reduced-acreage program, winter wheat producers evidently seeded most of last year's acreage and will delay participation decisions until sign-up or certification time next spring. Whether a higher

Wheat: Acreage and production

Class	Planted		Harvested		Production	
	1980	1981[1]	1980	1981[1]	1980	1981[1]
	Million acres				*Million bushels*	
Winter	57.4	65.8	51.4	58.5	1,891	2,059
Durum	5.5	5.8	4.8	5.6	108	182
Other Spring	17.5	17.2	14.6	16.5	370	509
Total[2]	80.4	88.8	70.9	80.7	2,370	2,750

[1]Preliminary. [2]Totals may not add due to rounding.

target price and regular and reserve loan rates will be sufficient incentive for widespread participation will be better known as the condition of the winter wheat crop and the 1982/83 price outlook become more clear. The removal of disaster payment benefits will reduce the incentive to participate.

Provisions of the New Farm Law In Conference

Debate continues on the 1981 farm bill as this publication goes to press. The Senate (S-844) and the House (H.R. 3603) have passed their version of new farm legislation. The different provisions between these two bills are currently being reconciled in Conference. Passage of acceptable farm legislation is not expected before late November. The farm bill will likely contain the following major provisions:

- The target price concept will continue with the price set at $4 per bushel or higher for the 1982 crop. Increases for subsequent crop years (1983-1985) will be a specified adjustment mechanism.
- The loan level for the 1982 crop will likely be $3.50 per bushel or higher with Secretarial discretion for increases in the 1983 thru 1985 crops. The reserve loan program will continue with authority to increase the rate above that of the regular loan. The trigger (release) level is to be established by the Secretary.
- The Secretary will likely have authority to implement a production adjustment program whenever supplies are excessive. This adjustment would be accomplished by a reduced acreage (set-aside) and/or land diversion program.

WORLD WHEAT OUTLOOK

Estimate for Record World Wheat Crop Declines

Dry conditions in some Southern Hemisphere grain producing areas have tempered earlier expectations of a sizable increase in the 1981/82 world wheat harvest. Still, prospects for global wheat output are at a new high of 448 million metric tons, only 10 million more than last season and a trifle over 1978/79's record.

Significantly increased production in the United States and Canada will offset harvest declines in both Western and Eastern Europe. In the Soviet Union, one of the most difficult growing seasons in the past decade caused a disappointing wheat harvest. A mild 1980/81 winter provided a favorable crop outlook, but adverse spring and summer weather cut back winter wheat prospects and seriously reduced the spring wheat outturn. Thus, total 1981 USSR production is estimated at 90 million tons, down 8 percent from a year ago. This year's Asian wheat output will be up 4 to 5 percent with China, India, and Pakistan recording improved 1981 harvests. Weather has adversely affected southern Hemisphere crops as harvesting begins. However, Australia's production is expected to be up 40 percent from the short 1980 harvest. The Argentine crop may be close to last year's.

Global wheat utilization is forecast to continue its upward trend in 1981/82 but will rise only marginally higher than 1980/81's record 444 million tons. The reduced crops in the Soviet Union and Eastern Europe will lower their use of wheat for feed somewhat, but this may be offset by increased feed use in the United States.

This season's indicated increase in the world wheat supply (larger production more than offsetting reduced carryin), coupled with only a minimal rise in consumption, implies a slight rise in world wheat stocks by the end of 1981/82. Yearend stocks may be around 77 million tons, 17 percent of the world's yearly utilization.

Strong World Trade In 1981/82

World wheat trade during 1981/82 (July/June) is estimated at 103 million tons, exceeding 100 million for the first time. Poor crops and insufficient domestic procurement have increased the demand for wheat by many importers and minor exporters. Because of this year's larger production, all the major exporters will likely have increased exportable supplies. The United States is expected to provide half of the total world exports, up from last year's 45 percent, while Canada's, Australia's, and Argentina's share will be slightly reduced.

The smaller European Community (EC) crop and increased internal feed use will reduce this season's exports below the 1980/81 record. Increased wheat availability and a continuation of aggressive Canadian export promotion will likely result in record exports at 17.5 million tons. Prospects for Australian wheat production deteriorated through September, reducing probable exportable supplies. However, the current 11.5-million-ton export estimate for Australia is still nearly a million above the poor 1980/81 season. Argentina's crop outlook also has declined as harvesting approaches, but timely rains could keep production and exports near last year's level. However, any further crop deterioration could cause some of Argentina's potential wheat buyers to look elsewhere for supplies.

On the import side, the USSR's poor harvest will require continuing record wheat imports, now forecast to be over 12 percent above last year's 16 million tons. Chinese imports will rise slightly as domestic demand continues to outstrip production. In India, dry conditions reducing food grain prospects and problems with Government procurement of domestic wheat will mean that country's largest wheat purchase from the world market in 6 years—perhaps reaching 4 million tons. An improvement in Brazil's wheat harvest lowered early import estimates. Still, Brazil will be one of the larger buyers of world wheat supplies in 1981/82.

Strong Export Prospects to Reduce HRW Supply

A late spring freeze in the western Wheat Belt kept the 1981 Hard Red Winter (HRW) harvest 7 percent under 1980's record 1.18 billion bushels. Typically, the quality of the HRW crop reflects weather variations and shifts to different wheat varieties planted throughout the wide expanse of the Great Plains. Thus, it is difficult to describe precisely the crop's overall quality. Whereas 1980's crop was judged to be excellent, this year's HRW quality may be considered good to very good.

Because of large carryin stocks, the 1981/82 supply of HRW will be the largest ever—1.64 billion bushels. However, on the strength of another record export season, total HRW disappearance for the marketing year is forecast to exceed production. Thus, ending stocks could slip below 400 million bushels, the lowest since 1975/76. More importantly, nearly 375 million bushels could be isolated from the market, either owned by CCC or in the farmer-owned reserve, leaving marketable supplies of HRW virtually nonexistant—a situation that this major wheat class has not faced in recent times. However, if farm prices respond by advancing to above $4.48 per bushel, a large portion of the reserve stocks (contracts I & III) will become available to the market.

So far, the forecast of another record export season is on track, with current shipments and sales about 20 percent ahead of last year's pace. Indications of stronger world wheat demand, particularly from the Soviet Union, and the lowering of export estimates for other major foreign exporters have resulted in a 1981/82 export projection of 870 million bushels, about 170 million above last year.

Record HRS Crop Harvested

A complete reversal of 1980's extremely poor growing conditions has resulted in a record 1981 Hard Red Spring (HRS) production of 467 million bushels. While acreage planted to HRS was virtually the same in both years, this year's improved growing conditions produced around 7 more bushels per acre in major spring wheat States and increased harvested acres by 16 percent. In addition, the overall quality shows substantial improvement over the drought- and sprout-damaged 1980 crop. Protein averages above 15 percent are on a par with last year and slightly above the average of the past 5 years.

This year's large crop means a return to record supply levels for 1981/82, after 2 years of drawing down excessively large inventories. Total supply should be around 725 million bushels. While disappearance may be on the upswing, the large projected increase in yearend stocks, to nearly 325 million bushels, suggests that the traditional HRS cash premium over HRW may almost nonexistent for most of the season. However, increased use of the farmer-owned reserve program could limit further downward price pressure. As much as two-thirds of the carryover could be isolated from the marketplace.

Competition from Canada's record 1981 crop may limit the upturn in exports in 1981/82. However, exports are projected at 225 million bushels, about on a par with the large supply years of 1978/79 and 1979/80. But a further widening of the current price spread of HRW over HRS could accelerate HRS exports.

Record Durum Crop and Supply; Prices Lower

Durum production in 1981 rebounded to a record-high 182 million bushels after last season's drought produced a disappointing crop of 108 million. North Dakota's Durum harvest alone was 56 million bushels above a year ago, and the Southwestern "desert Durum" crop jumped more than 50 percent. Last season's high prices encouraged planting of the largest acreage in recent years, and greatly improved growing conditions increased the average yield nearly 10 bushels per acre. Harvested acreage was record large, with abandonment returning to its typical low percentage. This production, coupled with old-crop carryover of around 60 million bushels, means extremely large Durum supplies for the 1981/82 marketing year. Total disappearance should recover from last year, when prices above $7 per bushel and poorer quality depressed domestic and export demand. Mill grind will be slow to recover as high interest rates result in low inventories of pasta product and a cautious buildup.

Early season Durum export commitments are up a third in response to expanded purchases by the EC and North Africa. Seriously short crops in Italy and Morocco (considered major world Durum producers) means they will have to depend on this year's large Canadian and U.S. harvests for additional supplies.

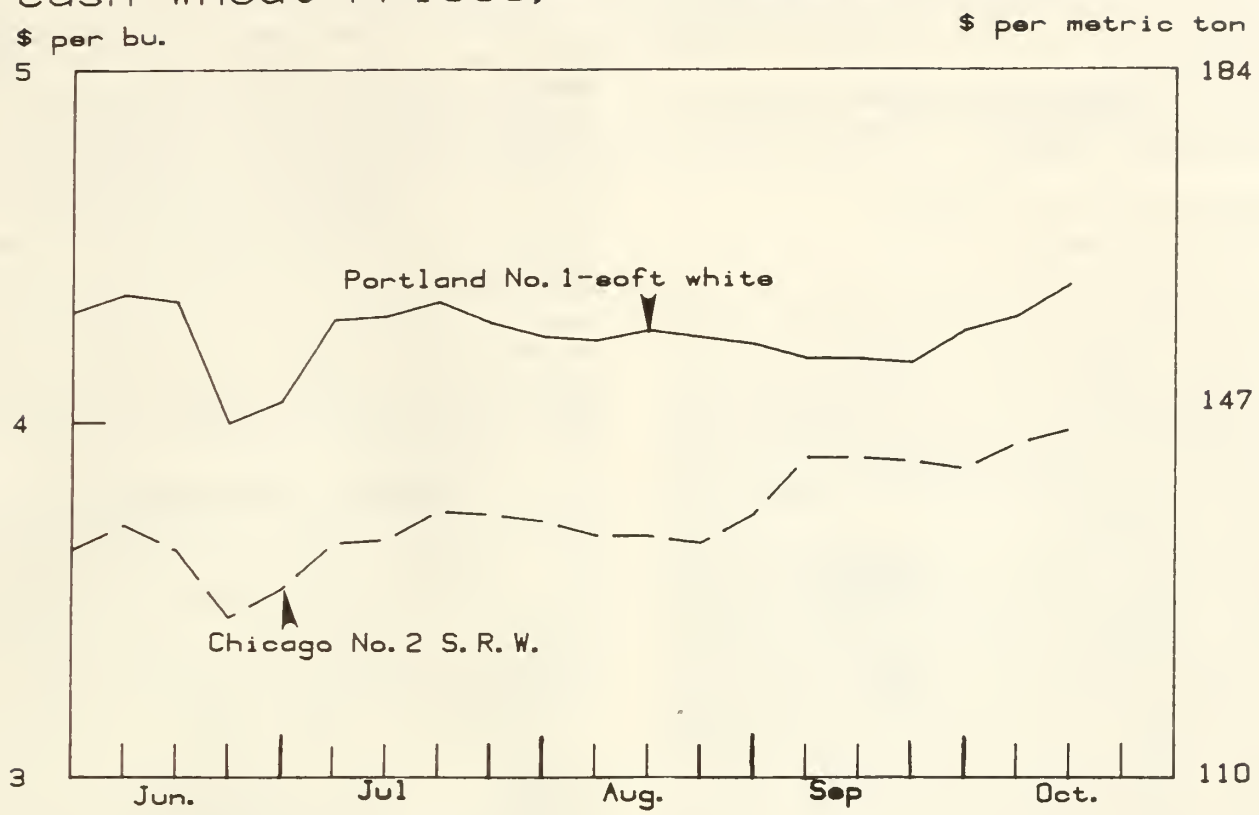
Despite prices being sharply down from last season, prospects for significantly whittling down the huge 1981/82 supply are not good. Yearend stocks will likely increase to over 100 million bushels, excessively large for this specialty wheat.

Record SRW Crop—Strong Exports

The 1981 Soft Red Winter (SRW) wheat harvest is estimated at 658 million bushels, 230 million above last year's record. Nearly 1 of every 4 bushels of wheat produced in 1981 was Soft Red, considerably above the normal importance of this class. Favorable growing conditions and a 50-percent acreage increase, spurred by expanded acreage in double-cropping areas, produced the extra large crop. The general quality of the crop may be classed as below a year ago, with test weights lower and protein higher, by as much as 1 percentage point. But supplies of preferred low protein should be ample for domestic buyers. Only minimal damage and garlicky problems have been noted.

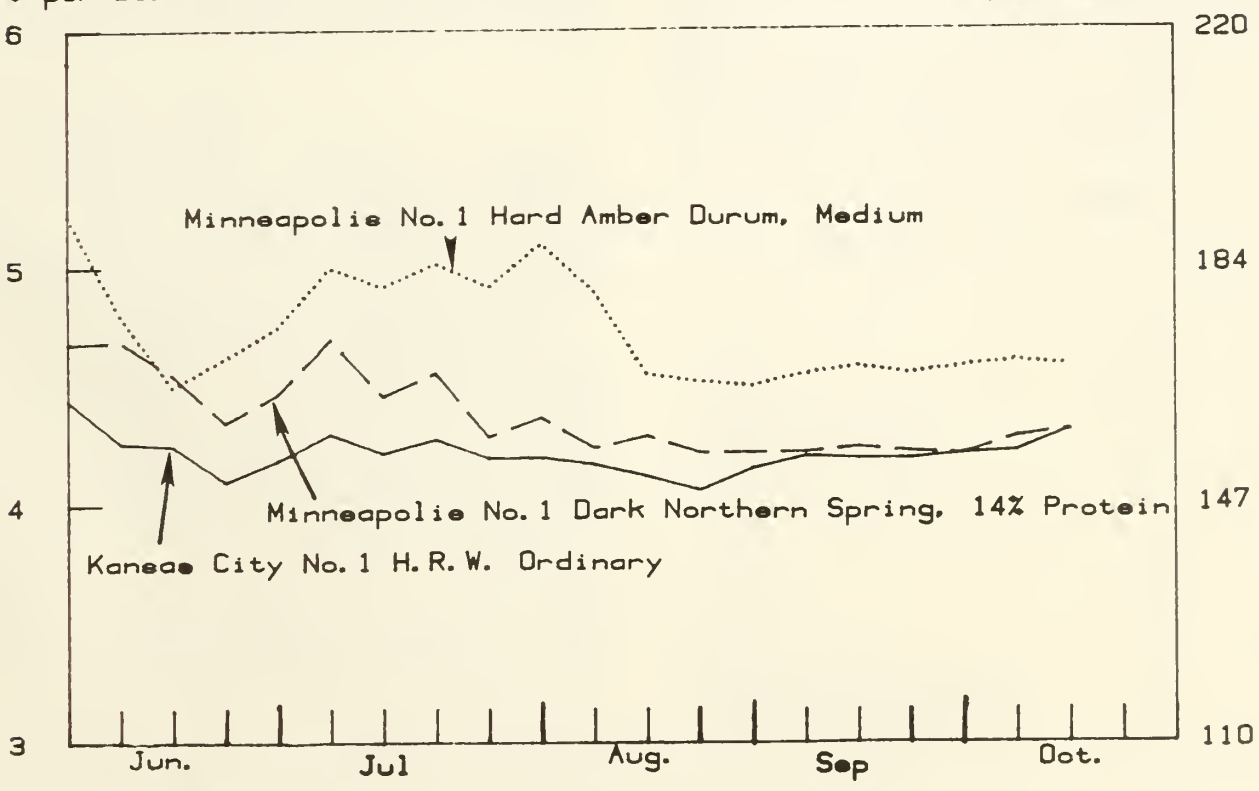
Earlier uncertainty as to the demand prospects for the mammoth 1981 SRW supply has been set to rest by an export outlook that is over 40 percent stronger than last year's phenomenal season. Soft Red exports for 1981/82

Cash Wheat Prices, 1981/82*



* Thureday price

Cash Wheat Prices, 1981/82*



* Thureday price.

are projected at 425 million bushels, over four times larger than the 95 million sold overseas just 3 years ago. As in 1980/81, half or more of the total SRW shipments will go to China.

With indications that the carryover could be about as low as last year, SRW producers may again seed about as much acreage as in 1981.

Bumper 1981 White Wheat Supply; Strong Export Prospects

From planting through harvesting, the 1981 White wheat crop developed under ideal conditions, particularly in the Pacific Northwest (PNW). Although production of spring-planted White wheat was down over a fourth, a record outturn of winter plantings means 1981/82 supplies of this class will continue at an alltime high. Yields in the PNW have generally been high, with the quality of both the eastern and western crop rated as the best in several years.

June-September White wheat exports continue the brisk pace that caused record loadings for the 1980/81 season. A year ago, Iran was completely absent from U.S. wheat markets; India made only a token purchase after being away from the U.S. market since 1977/78; and Egypt was a confirmed SRW buyer. Stronger early season buying from these three countries has boosted White export prospects to around 300 million bushels for 1981/82, 12 percent above last year's record.

Total disappearance should exceed the large crop, causing a substantial drawdown from the carryover of last June. In addition available White wheat supplies will be more scarce at yearend, if the nearly 50 million bushels of CCC-owned and farmer-held reserve stocks remain isolated from the market.

Reduced 1981/82 Rye Supplies

Rye grain production increased in three major producing States—Georgia, Minnesota, and North Dakota—more than offsetting a 27-percent decline in the leading State—South Dakota. The 1981 harvest is estimated at 17.1 million bushels, slightly above 1980's low outturn. Because of the reduced carryover level, total 1981/82 rye supplies will be the lowest since 1977/78. But, with bumper feed grain stocks and reduced feed grain prices, rye feeding is likely to be cut back. Current prospects are for a sharp decline in exports this season. Still, yearend stocks will be drawn down to below 4 million bushels. Based on this supply/demand projection and the general weakness of this year's grain markets, early season prices for rye have been around $3.60 to $3.70 per bushel at Minneapolis.

Rye: Supply and disappearance

Item	June-September	
	1980	1981
	Million bushels	
June 1 stocks	12.2	4.1
Production	16.3	17.1
Total supply[1]	28.5	21.2
Exports	3.2	(2)
Food	1.2	1.2
Seed	2.2	2.2
Industrial	0.4	0.4
Feed	3.1	3.7
Total disappearance	10.1	7.5
October 1 stocks	18.4	13.7

[1]Includes imports. [2]Less than 50,000 bushels.

REVISED WHITE PAN BREAD MARKETING SPREADS

L.D. SCHNAKE*

ABSTRACT: This article reviews a new bread formula for white pan bread marketing spreads and contrasts the new formula with the old. Also discussed are changes in Bureau of Labor Statistics wholesale price data and revised methodologies for computing the farm price of wheat, the mill price of wheat, and the millfeed price.

KEYWORDS: Bread margins, bread, bread formula

The marketing spreads for White pan bread have not been published in the *Wheat Situation* since May 1978 because the Bureau of Labor Statistics (BLS) discontinued publishing retail white pan bread prices. The USDA's Economic Research Service (ERS) has reviewed this marketing price spread series in conjunction with the BLS reinstituting the publication of data on retail bread prices.

This article gives a brief overview of the revisions made in the marketing spreads for white pan bread. The revisions are included in this issue of the *Wheat Situation* and will be included in future issues.

Findings of the ERS Review

Three major recommendations for marketing spreads for white pan bread resulted from the ERS review. 1) The bread formula used since 1964 needed revision. 2) The flour-milling extraction rate used since 1966 also needed examination and revision. 3) Methodologies and prices used to compute the farm price of wheat, the mill price of wheat, and the millfeed price needed to be updated.

The New Bread Formula

The American Institute of Baking (AIB) developed a new white pan bread formula from survey data in October of 1980. The new formula, based on current industry practice and technology, represents 313 U.S. wholesale bakeries. According to AIB, these bakeries produce 35 to 50 percent of the white pan bread made by commercial wholesale bakeries in the United States.

Table 1 compares the revised formula that will now be used with the previous formula, developed from the 1964 National Commission of Food Marketing, Technical Study No. 5, "Organization and Competition in the Milling and Baking Industries." Changes in the use of shortening products, sweeteners, dairy-type products, emulsifiers, dough strengtheners, and dough conditioners are noticeable.

The AIB survey data showed that 72 percent of the reporting bakeries were using oil (liquid at room temperature), while only 28 percent were using plastic vegetable shortening or lard. This is a significant shift from the past. In addition, the overall quantity of shortening used decreased 1 pound per 100 pounds of flour, or by one-third. This reduction has been possible because of increased use of dough conditioners, which are becoming more important in plants that use conveyors in bread making.

The breakthrough in lowering high fructose corn syrup (HFCS) production costs, which coincided with the jump in sugar costs in the early 1970's, led to the U.S. baking industry's heavy replacement of sugar with HFCS. This adjustment was confirmed by the AIB survey, which showed that over 95 percent of the reporting bakeries were using corn sweeteners of some type; 89 percent were using either HFCS or a blend of HFCS and corn syrup (CS); and less than 5 percent were using sucrose exclusively. As a result, the revised formula for bread marketing spreads is based on the use of HFCS and CS exclusively to minimize data collection and calculations. Before this change was made, data for the past 5 years were analyzed to study the cost effects of substituting HFCS for the small amount of sucrose used in U.S. white pan bread. The result was an insignificant difference in cost (from a negative .0004 cent to a positive .005 cent per pound of bread).

The other major change in bread formulation was in the use of dairy-type products, according to the AIB sur-

Table 1—Comparison of white pan bread formulae

Ingredient	Old	Revised
	Pounds	
Flour	100.00	100.00
Vegetable shortening	.70	NA
Lard	2.60	.60
Soybean oil	NA	1.70
Sucrose, granulated	9.20	NA
High fructose corn syrup	NA	6.20
Corn syrup	NA	1.20
Non-fat dry milk (solids)	2.50	NA
Soy-whey blend	NA	2.20
Yeast	2.70	2.75
Salt	2.20	2.10
Yeast food	.60	.50
Mold inhibitor	.20	.20
Malt	Trace	NA
Enzymes (protease)	NA	.25
Emulsifier/dough strengthener	.35	.75
Miscellaneous dough conditioner	.35	.50
Bread produced from formula	158.40	160.79

NA = Not applicable.

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vey. Less than 2 percent of the bakeries reported using nonfat dry milk. Eight percent used no dairy-type products. Soy-whey blends ranging from 80:20 to 50:50 were the most common dairy-type products used.

The bake-out of bread from the new formula is 160.79 pounds from 100 pounds of flour plus other ingredients and water. The bake-out from the old formula was 158.40 pounds.

Flour-Milling Extraction Rate Revised

The flour-milling extraction rate formerly used in the computation of white pan bread marketing spreads was 73 percent. This rate was determined from data contained in *Current Industrial Reports* on all wheats milled. The revised extraction rate, 72 percent, was obtained in cooperation with Professor Arlin Ward of Kansas State University's Department of Grain Science and Industry and with mill managers of the Association of Operative Millers. The rate will be updated annually.

Revised Price Methodologies

Farm price of wheat. Under the old procedures for computing white pan bread marketing spreads , the farm price of wheat was determined from prices at elevators in the ten leading Hard Red Winter (HRW) and Hard Red Spring (HRS) wheat States, as reported to USDA's Statistical Reporting Service (SRS). These prices were weighted using monthly quantities sold.

Exports have had a heavy influence on U.S. wheat prices since 1972. The former method for deriving the farm price of domestic bread-flour wheat gave more weight to prices in major producing States that export large quantities (such as Oklahoma and Texas), than to States that export smaller quantities. But, the pattern of weighting based on total wheat sales is not consistent with the pattern of sales for domestic use. Also, the weighting methods did not accurately represent the price of the mill blend of HRW and HRS wheats used by U.S. flour millers.

The methodology was revised to adjust for exports by subtracting an estimate of a State's HRW or HRS exports from total production. This was accomplished by using data from a 1977 study on U.S. grain flows. Exports from each State in 1977 were subtracted from that State's production in that year to obtain an estimate of "wheat for domestic consumption," which is used to weight USDA's prices for 11 States.

The total "wheat for domestic consumption" in the 11 States (noted with decimal fractions in figure 1) was used as the denominator and the individual State's total as the numerator to develop farm-price weights for the 11 States. The sum of weights (decimal fractions) segregated by class of wheat (HRW and HRS) is .638 HRW and .362 HRS. These figures compare with average domestic use of .694 and .306 for HRW and HRS wheats, respectively, for the 5-year period 1975/76 to 1979/80.

Mill price of wheat. The mill price of wheat for white pan bread marketing spreads calculated before 1978 was a weighted average of spot prices in six markets. Currently, only two of the original six markets publish spot market prices: Minneapolis for HRS and Kansas City for HRW. The cash prices in these two markets represent the total wheat traded in those markets, not the wheat mix used by millers of white pan bread flour. The past formula favored Minneapolis over Kansas City by about 8 to 1, because prices were weighted by the number of cars traded. This method caused the prices to be biased toward the protein premiums paid for Hard Red Spring wheat.

The revised procedure uses prices reported by the Agricultural Marketing Service (AMS) for 14-percent HRS wheat at Minneapolis and Portland, and 13-percent HRW wheat at Kansas City and Los Angeles. These prices are weighted by a 36-month moving average for flour production in Minnesota for the Minneapolis price, Washington and Oregon for the Portland price, Kansas and Missouri for the Kansas City price, and California for the Los Angeles price. The monthly moving average weights by class of wheat run approximately 61 percent for HRW and 39 percent for HRS. This compares with approximately 69 percent HRW and 31 percent HRS domestic disappearance of these two wheats.

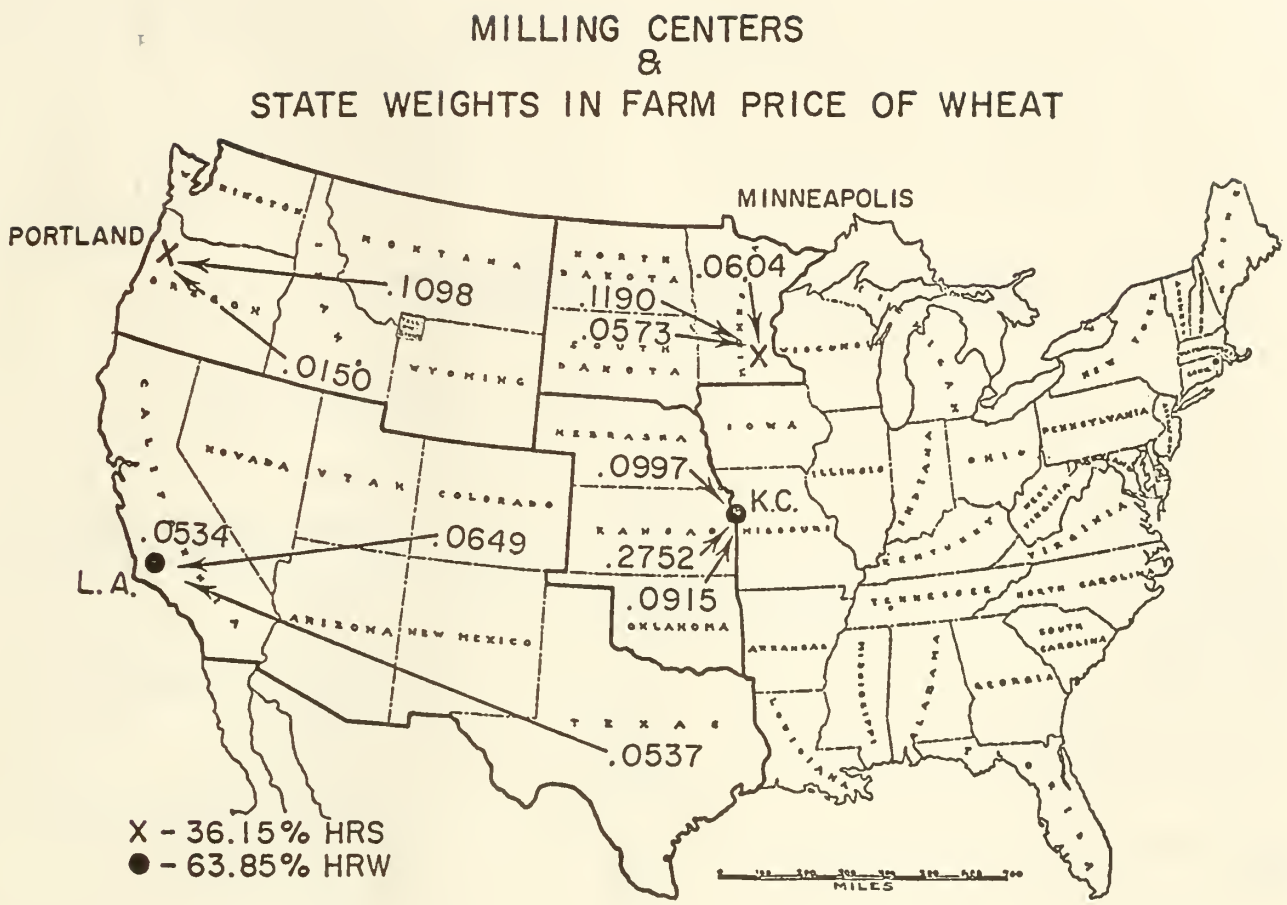
Millfeed price. Minneapolis, Kansas City, and Buffalo millfeed prices (average of bran and midds), as reported by AMS, weighted .2160, the f.o.b. mill price of millfeed. In the revised spreads, the Buffalo price is deleted, and Los Angeles and Portland prices for wheat millrun are used along with Minneapolis and Kansas City millfeed prices.

These millfeed markets are identical to the mill wheat markets. Weighting for the millfeed prices is a 36-month moving average of flour production plus Durum straight semolina production. The weighting procedure uses the same States as the weighted-average price of mill wheat did.

Change in Wholesale Price of Bread

The BLS discontinued publication of wholesale white pan bread prices during the third quarter of 1980. Before that it was not uncommon for BLS wholesale bread prices to exceed the BLS retail prices. This could be explained in part by the fact that the wholesale prices were only quotations for full-service delivered branded bread. Adjustments for estimated transportation costs, for differentials in the branded price versus the private label price, and for other services were required to make wholesale and retail prices comparable.

Since the BLS does not publish monthly wholesale bread prices, they will be estimated by using benchmark prices computed by BLS for 2 months of the year and a producer price index for bread. The estimated wholesale prices include quotes for private label bread and bread that is drop-delivered or sold f.o.b. bakery. So, these estimated wholesale prices should more nearly represent the bread prices at the bakery than did the old prices. Consequently, the former "baking-wholesaling" price spread has been deleted and replaced with a "baking" spread that represents the difference between the wholesale price of bread and the f.o.b. bakery cost of ingredients.



It is not possible to estimate accurately the "retailing" marketing spread as formerly reported, so this item is changed to the wholesale-to-retail spread—the difference between the wholesale price (value) and the retail price (value).

New Reporting Period

The revised marketing spreads will be reported quarterly, rather than monthly, as in the past. To better serve the needs of clientele for these data, the spreads will now be reported two ways: 1) on the basis of a one-pound loaf of bread and 2) on the basis of 100 pounds of flour.

White pan bread marketing spreads for the second quarter of 1981 are presented in table 2. Revised marketing spreads will be published for the quarters since June 1980 in a future issue of the *Wheat Situation.* Also, these articles will provide more details explaining the spreads and the computation process.

Table 2: White pan bread: Estimated price and marketing spreads of ingredients per 1 pound loaf and per cwt of flour, April - June 1981 *

Item	Value per loaf	Value per cwt of flour
	Cents	Dollars
Retail price (BLS)	52.23	83.98
Price spreads		
Wholesale-to-retail (1)	9.87	15.87
Baking (2)	32.33	51.98
Flour milling	.99	1.59
Other spreads		
Wheat, farm-to-flour mill	.90	1.45
Other farm ingredients (3)	.88	1.42
Flour, flour mill-to-baker	.62	.99
Nonfarm ingredients (4)	.99	1.59
Total farm-retail price spread	46.58	74.89
Farm value of ingredients		
Wheat	4.80	7.72
Other farm ingredients	.85	1.37
Total farm value	5.65	9.09
Cost of farm ingredients		
Flour		
F.o.b. bakery	7.31	11.76
F.o.b. flour mill	6.70	10.77
Wheat (5)		
F.o.b. flour mill	5.71	9.18
Farm value	4.80	7.72
Other farm ingredients		
F.o.b. bakery	1.73	2.79
Farm value	.85	1.37

	Dollars per cwt
Prices of flour and millfeeds	
Flour, F.o.b. bakery	11.76
Flour, F.o.b. flour mill	10.77
Millfeeds, F.o.b. flour mill	5.34
	Dollars per bushel
Prices of wheat	
Wheat, F.o.b. flour mill	4.73
Farm value	3.98

(1) Difference between retail and wholesale price of bread.
(2) Difference between wholesale price and cost of bread ingredients, f.o.b. bakery.
(3) Includes processing, transportation, and merchandising for lard, soybean oil, HFCS, corn syrup, and soy-whey blend. It is the difference between estimated cost to baker and estimated farm value.
(4) Estimated cost to baker of yeast, yeast food, salt and other nonfarm ingredients.
(5) Price adjusted for value of millfeeds.

* Price spreads may not add because of independent rounding.

WHEAT SITUATION TABLES

Table 2--Wheat classes: Marketing year supply and disappearance, 1/

Year beginning June 1	Supply			Disappearance			Ending stocks May 31
	Beginning stocks	Production	Total 2/	Domestic use	Exports	Total	
			Million bushels				
1978/79:							
Hard winter	632	830	1,462	429	610	1,039	423
Hard spring	335	380	715	163	232	395	320
Soft red	71	189	260	138	95	233	27
White	73	244	317	64	185	249	68
Durum	67	133	201	43	72	115	86
All classes	1,178	1,776	2,955	837	1,194	2,031	924
1979/80:							
Hard winter	423	1,089	1,512	347	725	1,072	440
Hard spring	320	363	684	182	217	399	285
Soft red	27	317	344	150	154	304	40
White	68	259	327	55	196	251	76
Durum	86	106	193	49	83	132	61
All classes	924	2,134	3,060	783	1,375	2,158	902
1980/81:							
Hard winter	440	1,185	1,625	388	697	1,085	540
Hard spring	285	311	597	152	188	340	257
Soft red	40	428	468	131	299	430	38
White	76	338	414	54	267	321	93
Durum	61	108	170	51	59	110	60
All classes	902	2,370	3,274	776	1,510	2,286	988
1981/82: 3/							
Hard winter	540	1,104	1,644	392	870	1,262	382
Hard spring	257	467	725	178	225	403	322
Soft red	38	658	696	241	425	666	30
White	93	339	432	65	300	365	67
Durum	60	182	243	56	80	136	107
All classes	988	2,750	3,740	932	1,900	2,832	908

1/Data, except production, are approximations. Imports and exports include flour and products in wheat equivalent.
2/Total supply includes imports.
3/Projected.

Table 3--Wheat: Price support loan status on specified dates, 1976-81 crops

Crop of	Total loans	Put in reserve	Repaid Loans	Repaid Reserve	Delivered to CCC	Outstanding Loans	Outstanding Reserve
			Million bushels				
			As of June 1, 1981				
1976	498.8	216.1	234.7	155.2	48.0	--	60.9
1977	590.8	194.9	393.7	134.2	2.2	--	60.7
1978	255.1	23.8	231.1	4.1	--	0.2	19.7
1979	180.5	39.8	140.4	5.4	--	0.3	34.4
1980	329.0	186.2	88.7	2.4	--	54.1	183.8
Total	***	***	***	***	1/199.7	54.6	359.5
			As of October 1, 1981				
1976	498.8	216.1	234.7	157.4	48.0	--	58.7
1977	590.8	194.9	393.7	138.3	2.2	--	56.6
1978	255.1	24.0	231.1	4.2	--	--	19.8
1979	180.5	39.9	140.5	5.5	--	0.1	34.4
1980	329.4	198.3	113.6	2.6	--	17.5	195.7
1981	254.8	66.1	14.5	0.1	--	174.2	66.0
Total	***	***	***	***	1/191.3	191.8	431.2
			As of January 1, 1981				
1976	498.8	216.1	234.7	140.3	48.0	--	75.8
1977	590.8	194.9	393.7	125.5	2.2	--	69.4
1978	255.1	22.4	230.4	3.1	--	2.3	19.3
1979	180.5	35.4	133.6	3.9	--	11.5	31.5
1980	183.3	33.2	25.6	0.9	--	124.5	32.3
Total	***	***	***	***	1/203.5	138.3	228.3
			As of April 1, 1981				
1976	498.8	216.1	234.7	148.4	48.0	--	67.7
1977	590.8	194.9	393.7	129.6	2.2	--	65.3
1978	255.1	23.6	231.0	3.9	--	0.5	19.7
1979	180.5	38.9	139.0	4.9	--	2.6	34.0
1980	297.4	145.7	58.0	1.8	--	93.7	143.9
Total	***	***	***	***	1/203.2	96.8	330.6

1/Includes outstanding CCC-owned stocks from loan forfeitures and open market purchases in March, 1980.

Source: Agricultural Stabilization and Conservation Service loan activity reports.

Table 4--Wheat: Marketing year Supply and Disappearance, specified periods, 1977-81*

Year and periods beginning June 1	Supply			Disappearance							Ending Stocks	
					Domestic use							
	Beginning stocks	Production	Imports 1/	Total	Food	Seed	Feed 2/	Total	Exports 1/	Total disappearance	Govt. owned	Privately owned 3/	Total
	Million Bushels												
1977/78													
June-Sept.	1,113.2	2,045.5	0.8	3,159.6	193.3	32.0	148.1	373.4	381.7	755.1	8.2	2,396.3	2,404.5
Oct.-Dec.	2,404.5	--	0.4	2,404.9	153.5	23.0	6.0	182.5	225.4	407.9	31.8	1,965.2	1,997.0
Jan.-Mar.	1,997.0	--	0.4	1,997.4	145.5	1.0	42.4	188.9	278.6	467.5	44.8	1,485.1	1,529.9
Apr.-May	1,529.9	--	0.3	1,530.2	94.2	24.0	-4.0	114.2	238.2	352.4	45.7	1,132.1	1,177.8
Mkt. year	1,113.2	2,045.5	1.9	3,160.7	586.5	80.0	192.5	859.0	1,123.9	1,982.9	45.7	1,132.1	1,177.8
1978/79													
June-Sept.	1,177.8	1,775.5	0.6	2,953.9	191.7	27.0	108.0	326.7	493.3	820.0	48.9	2,085.0	2,133.9
Oct.-Dec.	2,133.9	--	0.5	2,134.4	153.8	34.0	7.0	194.8	308.8	503.6	49.5	1,581.3	1,630.8
Jan.-Mar.	1,630.8	--	0.5	1,631.3	147.8	1.0	28.6	177.4	224.5	401.9	49.5	1,179.9	1,229.4
Apr.-May	1,229.4	--	0.3	1,229.7	99.1	25.0	14.0	138.1	167.5	305.6	50.2	873.9	924.1
Mkt. year	1,177.8	1,775.5	1.9	2,955.2	592.4	87.0	157.6	837.0	1,194.1	2,031.1	50.2	873.9	924.1
1979/80													
June-Sept.	924.1	2,134.1	0.7	3,058.9	198.5	33.0	45.6	277.1	511.0	788.1	49.9	2,220.9	2,270.8
Oct.-Dec.	2,270.8	--	0.5	2,271.3	157.9	37.0	-27.7	167.2	387.9	555.1	49.6	1,666.6	1,716.2
Jan.-Mar.	1,716.2	--	0.5	1,716.7	145.1	1.0	62.8	208.9	282.7	491.6	63.3	1,161.8	1,225.1
Apr.-May	1,225.1	--	0.4	1,225.5	94.6	30.0	5.3	129.9	193.6	323.5	141.7	760.3	902.0
Mkt. year	924.1	2,134.1	2.1	3,060.3	596.1	101.0	86.0	783.1	1,375.2	2,158.3	141.7	760.3	902.0
1980/81													
June-Sept.	902.0	2,369.7	0.7	3,272.4	197.2	38.0	46.9	282.1	518.4	800.5	202.1	2,269.8	2,471.9
Oct.-Dec.	2,471.9	--	0.6	2,472.5	167.0	44.0	-13.7	197.3	371.4	568.7	203.5	1,700.3	1,903.8
Jan.-Mar.	1,903.8	--	0.7	1,904.5	153.7	1.0	20.3	175.0	400.4	575.4	203.2	1,126.0	1,329.2
Apr.-May	1,329.2	--	0.5	1,329.7	96.1	31.0	-5.6	121.5	219.9	341.4	199.7	788.5	988.2
Mkt. year	902.0	2,369.7	2.5	3,274.2	614.0	114.0	47.9	775.9	1,510.1	2,286.0	199.7	788.5	988.2
1981/82 4/													
June-Sept.	988.2	2,749.8	0.7	3,738.7	203.5	35.0	176.7	415.2	621.8	1,037.0	191.3	2,510.4	2,701.7
Oct.-Dec.													
Jan.-Mar.													
Apr.-May													
Mkt. year													

1/Imports and exports include flour and other products expressed in wheat equivalent. 2/Residual; approximates feed use and includes negligible quantities used for distilled spirits. 3/Includes outstanding and reserve loans. 4/Preliminary. *Totals may not add due to rounding.

Table 5--Wheat, flour and wheat products, United States exports by months, 1976-81*

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
						1,000 bushels							
						Wheat (Grain only)							
1976/77	66,814	85,619	113,202	110,376	100,532	54,296	57,024	49,447	57,773	52,650	70,233	66,501	884,467
1977/78	77,073	83,657	93,432	110,634	69,107	57,565	87,368	64,819	94,669	105,468	103,286	120,060	1,067,138
1978/79	108,931	106,108	131,921	119,611	115,518	92,392	90,027	70,400	67,106	75,548	76,961	78,306	1,132,829
1979/80	104,607	133,283	117,787	129,617	149,040	108,882	114,879	82,683	89,526	94,735	98,327	88,579	1,311,945
1980/81	96,193	123,598	141,415	137,325	116,948	112,199	132,048	129,981	124,397	128,770	127,652	78,030	1,448,558
1981/82	124,521	138,168	145,428	194,148									
						Flour (Grain equivalent) 1/							
1976/77	5,605	3,052	5,060	6,028	2,861	1,357	988	3,204	5,871	6,522	8,433	4,893	53,874
1977/78	3,803	3,586	3,411	2,893	2,011	2,204	3,446	1,987	3,820	4,464	6,412	5,844	43,881
1978/79	6,426	4,370	5,124	5,109	4,235	1,399	1,617	1,380	3,050	3,355	2,231	6,589	44,885
1979/80	4,280	4,172	6,370	5,336	3,157	2,587	5,351	2,505	3,649	6,970	2,389	2,529	49,295
1980/81	4,230	2,082	5,057	3,774	2,785	2,165	1,739	2,658	5,217	6,353	7,347	4,803	48,209
1981/82	5,794	2,779	3,455	2,496									
						Wheat products (Grain equivalent) 2/							
1976/77	450	869	1,293	444	1,072	329	1,798	1,426	1,398	540	728	844	11,191
1977/78	788	926	269	1,211	925	952	1,821	1,097	1,164	1,059	942	1,694	12,848
1978/79	1,232	816	1,842	1,829	605	1,480	1,575	1,414	1,457	774	2,305	1,086	16,415
1979/80	772	1,797	1,492	1,483	1,190	1,484	1,334	1,168	378	1,083	836	918	13,935
1980/81	912	1,222	711	1,849	1,284	1,005	1,230	890	1,010	1,114	672	1,406	13,306
1981/82	1,827	1,150	1,009	1,037									
						Total wheat, flour and products							
1976/77	72,869	89,540	119,555	116,848	104,465	55,982	59,810	54,077	65,042	59,712	79,394	72,238	949,532
1977/78	81,663	88,169	97,113	114,738	72,043	60,722	92,635	67,903	99,653	110,991	110,639	127,598	1,123,867
1978/79	116,588	111,294	138,888	126,550	120,358	95,271	93,219	73,194	71,612	79,677	81,497	85,981	1,194,129
1979/80	109,659	139,252	125,649	136,436	153,387	112,953	121,564	86,356	93,553	102,788	101,552	92,026	1,375,175
1980/81	101,335	126,902	147,183	142,949	121,017	115,369	135,017	133,529	130,624	136,238	135,671	84,239	1,510,073
1981/82	132,142	142,097	149,892	197,681									

1/Includes meal and groats and durum. 2/Includes macaroni, rolled wheat and bulgar. *Totals may not add due to independent rounding.

Source: Bureau of the Census.

Table 6--Wheat: Farm price for leading classes and major feed grain in region, 1978-81 1/

Commodity and year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average	Loan rate
							All prices for 60 pounds							
							Central and So. Plains (Hard Winter) 2/							
Wheat:														
1978/79	2.72	2.71	2.74	2.82	2.96	2.98	2.97	2.93	2.96	2.97	3.00	3.12	2.91	2.28
1979/80	3.63	3.81	3.72	3.82	3.86	3.93	3.89	3.81	3.73	3.51	3.36	3.48	3.71	2.43
1980/81	3.49	3.63	3.75	3.86	4.10	4.19	4.01	4.08	3.99	3.83	3.88	3.75	3.88	2.94
1981/82	3.70	3.65	3.62	3.70										3.13
Sorghum:														
1978/79	2.15	2.05	1.97	1.96	2.06	2.11	2.12	2.11	2.11	2.12	2.15	2.17	2.09	2.00
1979/80	2.55	2.68	2.51	2.48	2.45	2.45	2.41	2.43	2.44	2.47	2.40	2.45	2.48	2.12
1980/81	2.58	2.94	3.06	3.18	3.31	3.33	3.34	3.33	3.28	3.14	3.18	3.12	3.15	2.27
1981/82	3.03	2.96	2.65	2.37										2.42
							Cornbelt (Soft Red Winter) 3/							
Wheat:														
1978/79	2.88	2.90	3.02	3.08	3.23	3.34	3.37	3.37	3.50	3.38	3.44	3.58	3.26	2.34
1979/80	3.85	4.01	3.86	3.93	4.00	3.87	3.99	4.03	4.11	3.82	3.59	3.62	3.89	2.48
1980/81	3.58	3.82	4.02	4.19	4.41	4.59	4.50	4.50	4.28	4.03	4.00	3.59	4.13	3.00
1981/82	3.24	3.47	3.39	3.49										3.20
Corn:														
1978/79	2.52	2.39	2.18	2.13	2.12	2.19	2.27	2.31	2.39	2.44	2.51	2.61	2.34	2.18
1979/80	2.78	3.02	2.88	2.81	2.59	2.48	2.71	2.66	2.65	2.63	2.60	2.68	2.71	2.31
1980/81	2.76	3.06	3.28	3.36	3.28	3.46	3.53	3.54	3.58	3.58	3.57	3.56	3.38	2.46
1981/82	3.47	3.44	3.11	2.76										2.62
							Northern Plains (Spring and Durum) 4/							
Wheat:														
1978/79	2.79	2.69	2.71	2.78	2.87	2.93	2.86	2.75	2.83	2.84	2.89	3.14	2.84	2.36
1979/80	3.49	3.69	3.62	3.67	3.83	3.75	3.61	3.54	3.60	3.57	3.66	3.80	3.65	2.51
1980/81	3.89	4.07	3.97	4.02	4.24	4.39	4.28	4.33	4.30	4.21	4.29	4.31	4.19	3.02
1981/82	4.15	3.95	3.69	3.66										3.21
Barley:														
1978/79	2.25	2.00	2.02	2.14	2.22	2.36	2.33	2.27	2.26	2.34	2.46	2.55	2.27	1.92
1979/80	2.65	2.72	2.50	2.65	2.72	2.77	2.68	2.68	2.52	2.60	2.51	2.60	2.64	2.02
1980/81	2.82	2.69	3.14	3.32	3.44	3.69	3.62	3.62	3.72	3.72	3.73	3.69	3.43	2.16
1981/82	3.38	2.72	2.71	2.98										2.28
							Pacific Northwest (White) 5/							
Wheat:														
1978/79	3.23	3.29	3.35	3.36	3.30	3.30	3.34	3.30	3.21	3.22	3.30	3.42	3.30	2.41
1979/80	3.98	3.93	4.12	4.03	3.91	3.89	3.73	3.68	3.80	3.71	3.66	3.56	3.83	2.57
1980/81	3.53	3.71	3.67	3.80	4.03	4.12	4.08	4.05	4.06	4.11	4.02	4.08	3.94	3.08
1981/82	3.99	3.82	3.80	3.81										3.29
Barley:														
1978/79	2.69	2.59	2.54	2.35	2.25	2.32	2.31	2.39	2.36	2.44	2.49	2.58	2.44	2.15
1979/80	2.69	3.08	3.00	3.09	3.07	3.34	3.10	3.10	3.10	3.18	3.21	3.12	3.09	2.26
1980/81	3.16	3.34	3.32	3.35	3.70	3.80	3.99	4.07	4.15	4.07	3.95	3.99	3.74	2.40
1981/82	3.72	3.39	3.19	3.10										2.55
							U.S. Average							
Wheat:														
1978/79	2.81	2.81	2.88	2.92	2.99	3.04	3.01	2.99	2.99	2.97	3.01	3.20	6/2.97	2.35
1979/80	3.72	3.89	3.74	3.87	3.98	3.94	3.81	3.74	3.78	3.64	3.58	3.69	6/3.78	2.50
1980/81	3.69	3.81	3.94	3.99	4.19	4.32	4.22	4.21	4.17	4.09	4.07	3.95	6/3.96	3.00
1981/82	3.70	3.62	3.62	3.65										3.20

1/To adjust price to relative feed value multiply: Corn 1.00; Wheat 1.05; Barley .90; Sorghum .95; reported in Consumption of Feed by Livestock, Report No. 79, ERS, USDA. 2/Kansas, Nebraska, Texas, Oklahoma, and Colorado. 3/Ohio, Indiana, Illinois, and Missouri. 4/North Dakota, South Dakota, and Minnesota. 5/Washington, Oregon, and Idaho. 6/Season average price includes allowance for unredeemed loans and purchases.

Table 7--Wheat: Cash prices for leading classes at major markets, 1978-81

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
						Dollars per bushel							
					Kansas City, No. 1 Hard Red Winter (ordinary protein)								
1978/79	3.12	3.14	3.14	3.24	3.42	3.48	3.39	3.42	3.50	3.52	3.53	3.64	3.38
1979/80	4.17	4.34	4.12	4.26	4.39	4.53	4.51	4.33	4.32	4.07	3.90	4.10	4.25
1980/81	4.07	4.21	4.31	4.45	4.70	4.89	4.54	4.60	4.47	4.35	4.48	4.36	4.45
1981/82	4.24	4.25	4.14	4.19									
					13% protein								
1978/79	3.20	3.17	3.15	3.26	3.42	3.48	3.40	3.43	3.52	3.55	3.58	3.71	3.41
1979/80	4.22	4.42	4.28	4.39	4.55	4.67	4.60	4.40	4.35	4.14	3.96	4.14	4.34
1980/81	4.12	4.25	4.34	4.49	4.70	4.91	4.60	4.67	4.50	4.40	4.57	4.44	4.50
1981/82	4.36	4.26	4.16	4.22									
					Chicago, No. 2 Soft Red Winter								
1978/79	3.18	3.22	3.32	3.42	3.51	3.68	3.68	3.73	3.88	3.79	3.60	3.86	3.57
1979/80	4.36	4.39	4.23	4.28	4.30	4.13	4.26	4.36	4.39	4.18	3.96	4.04	4.24
1980/81	3.96	4.17	4.21	4.38	4.70	4.92	4.54	4.57	4.34	4.15	4.18	3.80	4.33
1981/82	3.60	3.70	3.70	3.87									
					St. Louis, No. 2 Soft Red Winter								
1978/79	3.05	3.16	3.21	3.23	3.41	3.57	3.50	3.57	3.66	3.51	3.62	3.68	3.43
1979/80	4.08	4.18	4.04	4.08	4.02	4.10	4.28	4.26	4.32	4.11	3.80	3.93	4.10
1980/81	3.73	4.10	4.19	4.42	4.78	4.96	4.78	4.80	4.57	4.32	4.36	3.67	4.39
1981/82	3.41	3.54	3.56	3.67									
					Toledo, No. 2 Soft Red Winter								
1978/79	3.09	3.13	3.21	3.32	3.46	3.73	3.72	3.73	3.69	3.66	3.56	3.71	3.50
1979/80	4.17	4.37	4.22	4.28	4.29	4.21	4.28	4.21	4.32	4.08	3.80	3.90	4.18
1980/81	3.84	4.14	4.16	4.38	4.82	5.02	4.65	4.70	4.47	4.16	4.16	3.76	4.36
1981/82	3.55	3.63	3.71	3.83									
					Toledo, No. 2 Soft White								
1978/79	3.10	3.26	3.45	3.63	3.69	3.87	3.78	3.72	3.63	3.44	3.35	3.53	3.54
1979/80	4.08	4.31	4.15	4.17	4.12	4.20	4.18	4.10	4.14	3.90	3.63	3.74	4.06
1980/81	3.71	4.05	4.15	4.31	--	--	4.44	4.49	4.21	3.87	3.87	3.62	4.07
1981/82	3.43	3.62	3.77	3.91									
					Portland, No. 1 Soft White								
1978/79	3.60	3.74	3.72	3.77	3.76	3.76	3.71	3.70	3.65	3.70	3.70	3.91	3.73
1979/80	4.46	4.67	4.45	4.31	4.13	4.16	4.10	4.10	4.26	4.13	4.02	3.91	4.22
1980/81	3.92	4.15	4.06	4.23	4.48	4.68	4.40	4.52	4.52	4.41	4.51	4.41	4.36
1981/82	4.26	4.27	4.25	4.21									
					Minneapolis, No. 1 Dark No. Spring (ordinary protein)								
1978/79	3.06	2.95	2.96	3.07	3.21	3.32	3.15	3.12	3.12	3.18	3.29	3.62	3.17
1979/80	4.23	4.31	4.10	4.18	4.31	4.27	4.18	4.06	4.13	4.04	3.94	4.21	4.16
1980/81	4.19	4.54	4.22	4.17	4.62	4.78	4.62	4.65	4.53	4.32	4.41	4.44	4.46
1981/82	4.29	4.18	4.03	4.07									
					14% protein								
1978/79	3.21	3.11	3.13	3.26	3.41	3.47	3.32	3.30	3.36	3.42	3.45	3.73	3.35
1979/80	4.32	4.42	4.19	4.29	4.45	4.29	4.17	4.07	4.08	4.02	3.96	4.31	4.21
1980/81	4.33	4.69	4.55	4.56	4.82	4.95	4.77	4.81	4.78	4.67	4.80	4.77	4.71
1981/82	4.56	4.50	4.25	4.23									
					Hard Amber Durum, No. 1 (medium)								
1978/79	3.72	3.56	3.55	3.52	3.69	3.70	3.53	3.60	3.64	3.72	3.71	3.98	3.66
1979/80	4.75	4.99	4.88	5.27	5.80	5.38	4.99	4.93	5.05	4.98	4.89	5.21	5.09
1980/81	5.79	7.12	7.19	7.26	7.34	7.22	6.90	7.07	7.02	6.66	6.10	6.04	6.81
1981/82	4.86	4.91	4.75	4.56									

Source: Grain Market News, Agricultural Marketing Service.

Table 8--Wheat and flour: Price relationships at milling centers, annual and by periods, 1977-81

Year and periods	At Kansas City					At Minneapolis				
	Cost of wheat to produce 100 lb. of flour 1/	Wholesale price of				Cost of wheat to produce 100 lb. of flour 1/	Wholesale price of			
		Bakery flour per 100 lb. 2/	Byprod-ucts obtained 100 lb. flour 3/	Total products			Bakery flour per 100 lb. 2/	Byprod-ucts obtained 100 lb. flour 3/	Total products	
				Actual	Over cost of wheat				Actual	Over cost of wheat
	Dollars					Dollars				
1977/78										
June-Sept.	5.61	5.86	1.19	7.05	1.44	5.97	6.70	1.23	7.93	1.96
Oct.-Dec.	6.34	6.46	1.33	7.79	1.45	6.69	7.24	1.23	8.47	1.78
Jan.-Mar.	6.77	6.88	1.37	8.25	1.48	6.82	7.52	1.25	8.77	1.95
Apr.-May	7.54	7.86	1.14	9.00	1.46	7.45	8.52	1.08	9.60	2.15
Mkt. year	6.56	6.76	1.26	8.02	1.46	6.73	7.49	1.20	8.69	1.96
1978/79										
June-Sept.	7.29	7.49	1.27	8.76	1.47	7.27	8.03	1.16	9.19	1.92
Oct.-Dec.	7.83	7.77	1.67	9.44	1.61	7.78	8.15	1.48	9.63	1.85
Jan.-Mar.	7.98	7.84	1.61	9.45	1.47	7.74	8.05	1.44	9.49	1.75
Apr.-May	8.31	8.46	1.35	9.81	1.50	8.26	8.65	1.29	9.94	1.68
Mkt. year	7.85	7.89	1.47	9.36	1.51	7.76	8.22	1.34	9.56	1.80
1979/80										
June-Sept.	9.87	9.91	1.70	11.61	1.74	9.88	10.22	1.61	11.83	1.95
Oct.-Dec.	10.50	10.39	1.85	12.24	1.74	9.99	10.57	1.63	12.20	2.21
Jan.-Mar.	9.79	10.02	1.77	11.79	2.00	9.46	10.20	1.45	11.65	2.19
Apr.-May	9.24	9.75	1.50	11.25	2.01	9.61	10.04	1.36	11.40	1.79
Mkt. year	9.85	10.02	1.70	11.72	1.87	9.73	10.26	1.51	11.77	2.04
1980/81										
June-Sept.	9.81	10.11	1.81	11.92	2.11	10.46	10.83	1.63	12.46	2.00
Oct.-Dec.	10.80	10.54	2.38	12.92	2.12	11.29	11.04	2.05	13.09	1.80
Jan.-Mar.	10.31	10.44	1.95	12.39	2.08	10.98	11.05	1.67	12.72	1.74
Apr.-May	10.27	10.42	1.81	12.23	1.96	11.08	11.09	1.76	12.85	1.77
Mkt. year	10.30	10.38	1.99	12.37	2.07	10.95	11.00	1.78	12.78	1.83
1981/82 4/										
June-Sept.	9.69	10.33	1.55	11.88	2.19	10.08	10.82	1.49	12.31	2.23
Oct.-Dec.										
Jan.-Mar.										
Apr.-May										
Mkt. year										

1/Based on 73 percent extraction rate, cost of 2.28 bushels: At Kansas City, No. 1 Hd. Winter, 13 percent protein, and at Minneapolis, simple average of No. 1 Dark Northern Spring, 13 and 15 percent protein. 2/Quoted as 95 percent patent at Kansas City and standard patent at Minneapolis, bulk basis. 3/Assumed 50-50 millfeed distribution between bran and shorts or middlings, bulk basis. 4/Preliminary.

Source: Compiled from reports of Agricultural Marketing Service and Department of Labor.

Table 9--Wheat: Export prices by months, at selected ports, 1978-81

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
						Dollars per metric ton							
						Gulf: No. 1 Hard Red Winter, Ordinary protein							
1978/79	126	127	128	131	137	138	136	138	140	140	140	143	135
1979/80	168	175	169	174	178	178	180	176	173	164	156	161	171
1980/81	158	169	171	180	188	195	182	187	182	175	180	172	178
1981/82	169	168	170	171									
						Gulf: No. 1 Soft Red Winter							
1978/79	123	124	126	130	136	141	137	140	144	144	144	141	136
1979/80	164	169	163	165	163	164	172	170	168	162	153	154	164
1980/81	146	163	165	176	187	193	180	187	176	168	172	143	171
1981/82	133	136	140	147									
						Portland: No. 2 Western White							
1978/79	136	141	139	141	140	141	139	139	137	138	138	148	140
1979/80	171	178	167	163	160	157	155	157	162	157	155	148	161
1980/81	147	158	157	162	172	180	170	174	173	166	166	165	166
1981/82	159	159	161	161									
						Duluth: No. 2 Northern Spring, 14% protein							
1978/79	119	116	117	121	127	129	120	122	123	126	127	138	124
1979/80	163	166	1/	1/	167	158	1/	1/	1/	1/	146	158	159
1980/81	158	174	168	170	177	180	1/	1/	1/	1/	176	175	172
1981/82	170	164	159	156									

1/No price quotes available.

Source: Grain Market News, Agricultural Marketing Service.

Table 10--Wheat: Rotterdam, c.i.f., quotations by months, 1978-81 1/

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
						Dollars per metric ton							
						United States No. 2 Hard Winter, 13.5%							
1978/79	150	146	147	148	156	161	157	155	160	165	157	166	156
1979/80	193	204	200	205	209	212	212	200	200	197	NQ	NQ	203
1980/81	198	203	209	214	224	233	235	233	225	212	211	206	217
1981/82	203	204	201	200									
						United States Dark Northern Spring, 14%							
1978/79	142	138	140	144	153	159	150	164	170	164	154	166	154
1979/80	192	202	194	199	205	204	205	206	205	196	188	199	200
1980/81	197	212	212	212	216	226	235	245	240	209	210	207	218
1981/82	197	194	189	190									

1/Hamburg Mercantile Exchange prices for Rotterdam.

Source: World Grain Situation, Foreign Agricultural Service.

Table 11--Wheat and Wheat Flour: World trade, production, stocks and utilization, July-June 1978-81

Country or region	1978/79	1979/80	1980/81	1981/82 projected as of Oct. 14
		Million metric tons		
Exports:				
Canada	13.5	15.0	17.0	17.5
Australia	6.7	14.9	10.6	11.5
Argentina	3.3	4.7	3.9	5.0
Sub-total	23.5	34.7	31.5	34.0
EC-10	8.8	10.4	14.0	13.5
USSR	1.5	0.5	0.5	0.8
All others	6.0	3.7	5.7	3.2
Total non-U.S.	39.7	49.3	51.7	51.5
USA 1/	32.3	37.2	41.9	51.7
World total	72.0	86.5	93.6	103.2
Imports:				
EC-10	4.6	5.2	4.5	4.6
USSR	5.1	12.1	16.0	18.0
Japan	5.7	5.6	5.8	5.7
E. Europe	4.4	6.0	5.8	6.1
China, (Mainland)	8.0	8.9	13.8	14.0
All others	44.0	48.7	47.7	54.8
World total	72.0	86.5	93.6	103.2
Production: 2/				
Canada	21.1	17.2	19.2	24.4
Australia	18.1	16.2	10.8	15.1
Argentina	8.1	8.1	7.8	9.0
EC-10	50.3	48.8	54.8	52.5
USSR 3/	120.8	90.2	98.1	90.0
E. Europe	35.9	27.6	34.5	31.0
China (Mainland)	54.0	62.7	54.2	56.0
India	31.7	35.5	31.6	34.0
All other foreign	58.2	57.9	62.8	60.7
USA	48.3	58.1	64.5	74.8
World total	446.6	422.3	438.2	447.5
Utilization: 4/				
USA	22.8	21.3	21.0	23.3
USSR 3/	106.5	115.8	115.6	107.2
China, (Mainland)	62.0	71.6	68.0	70.0
All other foreign	238.7	235.2	239.3	243.5
World total	430.0	443.9	443.9	444.0
Stocks, ending: 5/	100.8	79.2	73.5	77.0

1/Includes transhipments through Canadian ports; excludes products other than flour. 2/Production data include all harvests occurring within the July-June year shown, except that small grain crops from the early harvesting Northern Hemisphere areas are "moved forward;" i.e., the May 1978 harvests in areas such as India, North Africa, and Southern United States are actually included in "1978/79" accounting period which begins July 1, 1978. 3/"Bunker weight" basis: not discounted for excess moisture and foreign material. 4/Utilization data are based on an aggregate of differing local marketing years. For countries which stocks data are not available, (excluding the USSR) utilization estimates represent "apparent" utilization, i.e., they are inclusive of annual stock level adjustments. 5/Stocks data are based on an aggregate of differing local marketing years and should not be construed as representing world stock levels at a fixed point in time. Stocks data are not available for all countries and exclude those such as China and part of Eastern Europe; the world stock levels have been adjusted for estimated year-to-year changes in USSR grain stocks, but do not purport to include the entire absolute level of USSR stocks.

Source: Foreign Agricultural Service. World Grain Situation.

Table 12--Rye: Supply, disappearance, area and prices, marketing years 1977-81*

Item	1977/78	1978/79	1979/80	1980/81 (prel.)	1981/82 (proj.)
			Million bushels		
Supply					
Beginning stocks, June 1	4.4	4.0	9.0	12.2	4.1
Production	16.5	24.1	22.4	16.3	17.1
Imports	0.1	0.1	1/	1/	--
Total	21.1	28.2	31.4	28.5	21.2
Domestic disappearance					
Food	3.6	3.7	3.5	3.5	3.5
Alcoholic beverages	1.9	2.4	2.1	2.1	2.1
Seed	4.8	4.9	4.2	4.2	4.2
Feed 2/	6.8	7.9	6.9	7.1	6.0
Total	17.1	18.9	16.8	16.9	15.8
Exports	1/	0.3	2.4	7.5	2.0
Total disappearance	17.1	19.2	19.2	24.4	17.8
Ending stocks, May 31	4.0	9.0	12.2	4.1	3.4
			Million acres		
Area					
Planted	2.6	2.9	2.9	2.5	2.6
Harvested	0.7	0.9	0.9	0.7	0.7
			Bushels per acre		
Yield per harvested acre	24.4	26.0	25.8	24.5	25.8
			Dollars per bushel		
Prices					
Received by farmers	2.06	1.99	2.06	2.62	2.90
Minneapolis No. 2	2.53	2.44	2.47	3.35	
Loan rate	1.70	1.70	1.79	1.91	2.04

1/ Less than 50,000 bushels.

2/ Residual, approximates total feed use.

* Totals may not add due to rounding.

Table 13--Rye: Marketing year Supply and Disappearance, specified periods, 1977-81*

Year and periods beginning June 1	Supply				Disappearance								Ending Stocks	
					Domestic use									
	Beginning stocks	Production	Imports	Total	Food	Alc. Beverages	Seed	Feed 1/	Total	Exports	Total Disappearance	Govt. Owned	Privately owned 2/	Total
	Million Bushels													
1977/78														
June-Sept.	4.4	16.5	0.1	21.0	1.2	0.6	2.4	2.7	6.9	3/	6.9	--	14.1	14.1
Oct.-Dec.	14.1	--	--	14.1	0.9	0.5	2.2	1.7	5.3	3/	5.3	--	8.8	8.8
Jan.-Mar.	8.8	--	--	8.8	0.9	0.5	0.2	1.4	3.0	3/	3.0	--	5.8	5.8
Apr.-May	5.8	--	3/	5.9	0.6	0.3	--	1.0	1.9	3/	1.9	--	4.0	4.0
Mkt. year	4.4	16.5	0.1	21.1	3.6	1.9	4.8	6.8	17.1	3/	17.1	--	4.0	4.0
1978/79														
June-Sept.	4.0	24.1	0.1	28.2	1.1	0.5	2.5	1.6	5.7	3/	5.7	--	22.5	22.5
Oct.-Dec.	22.5	--	--	22.5	1.1	0.6	2.2	3.4	7.3	3/	7.3	--	15.2	15.2
Jan.-Mar.	15.2	--	3/	15.2	1.0	0.7	0.2	1.6	3.5	3/	3.5	--	11.7	11.7
Apr.-May	11.7	--	--	11.7	0.5	0.6	--	1.3	2.4	0.3	2.7	--	9.0	9.0
Mkt. year	4.0	24.1	0.1	28.2	3.7	2.4	4.9	7.9	18.9	0.3	19.2	--	9.0	9.0
1979/80														
June-Sept.	9.0	22.4	3/	31.4	1.2	0.6	2.2	2.0	6.0	0.6	6.6	0.2	24.6	24.8
Oct.-Dec.	24.8	--	--	24.8	0.9	0.4	1.8	2.4	5.5	1.6	7.1	0.2	17.5	17.7
Jan.-Mar.	17.7	--	3/	17.7	0.9	0.6	0.2	1.0	2.7	3/	2.7	0.2	14.8	15.0
Apr.-May	15.0	--	3/	15.0	0.5	0.5	--	1.5	2.6	0.2	2.8	0.2	12.0	12.2
Mkt. year	9.0	22.4	3/	31.4	3.5	2.1	4.2	6.9	16.8	2.4	19.2	0.2	12.0	12.2
1980/81														
June-Sept.	12.2	16.3	3/	28.5	1.2	0.4	2.2	3.1	6.9	3.2	10.1	0.2	18.2	18.4
Oct.-Dec.	18.4	--	3/	18.4	1.0	0.5	1.8	2.7	6.0	3.1	9.1	0.3	9.0	9.3
Jan.-Mar.	9.3	--	3/	9.3	0.8	0.7	0.2	0.1	1.8	0.7	2.5	0.3	6.5	6.8
Apr.-May	6.8	--	3/	6.8	0.5	0.5	--	1.2	2.2	0.5	2.7	0.1	4.0	4.1
Mkt. year	12.2	16.3	3/	28.5	3.5	2.1	4.2	7.1	16.9	7.5	24.4	0.1	4.0	4.1
1981/82 4/														
June-Sept.	4.1	17.1	3/	21.2	1.2	0.4	2.2	3.7	7.5	3/	7.5	0.1	13.6	13.7
Oct.-Dec.														
Jan.-Mar.														
Apr.-May														
Mkt. year														

1/Residual; Approximates total feed use. 2/Incluoes outstanding loans. 3/Less than 50,000 bushels. 4/Preliminary.
*Totals may not add due to rounding.

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